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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
SANGHAVI, HEMANG	
ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 08/13/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.	Applicant(s)	
	09/105,572	HALL ET AL.	
	Examiner	Art Unit	
	Hemang Sanghavi	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Peri d for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 April 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *31-50* is/are pending in the application.

4a) Of the above claim(s) *31-34* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *35-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

In view of new grounds of rejection, PROSECUTION IS HEREBY REOPENED. A new ground of rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

The amendment filed to cancel claims 21-30 on January 13, 2003 has been entered. In view of new grounds of rejection, this action is **not** made final.

Status of Claims:

Claims 31-50 are pending in the application.

Claim Objections

Claims 31-34 are objected to because of the following informalities: Claims 31-34 depend upon the canceled claims. The dependency of the claims should be changed to properly depend upon the pending claims or the claims should be canceled. It believes to be typo in the amendment filed January 13, 2003 canceling only claims 21-30, since the Status of Claims filed with appeal brief indicates that claims 31-34 are

canceled. Therefore, claims 31-34 are withdrawn from consideration. Appropriate correction is required. The rejection on merits of claims 35-50 is as follows:

Estoppel

Claims 37-38 are rejected as unpatentable over the lost count 1 on the grounds of estoppel.

The lost Count I:

A fiber amplifier comprising

a gain optical fiber having a single-mode core containing dopant ions capable of producing stimulated emission of light within a predetermined band of wavelengths including a wavelength λ_s when pumped with light of wavelength λ_p, said gain fiber having input and output ends,

absorbing ion filtering means for attenuating light at at least some of the wavelengths within said predetermined band of wavelengths, said absorbing ion filtering means comprising umpumped gain ions,

means for introducing a signal of wavelength λ_s into said gain fiber input end,

means introducing pump light of wavelength λ_p into said gain fiber, and

means for preventing the excitation of said pumped gain ions by light of wavelength λ_p.

Claims 1, 2, 10, 12-14, 17, and 18 correspond to the lost count 1.

A review of the newly added claims (37-38) in this reissue application shows that they recite subject matter falling within the bounds of the lost count 1 in the interference proceeding, subsequently these claims are rejected on the grounds of estoppel.

The only difference between claim 37 and claim 17 of the count 1 is that the gain fiber is limited to a fiber "having **only one** single-mode core" in contrast to the count 1 which includes a gain fiber "having **a** single-mode core".

The lost count 1 certainly anticipates gain fiber having **only one** single-mode core as claimed in claim 37 of this reissue application, since the lost count 1 do not refer to a multiple cores and clearly refers to a gain optical fiber having **a** single mode core.

Claim 38 is identical to claim 18, respectively. Since claim 18 corresponds to lost count 1 of the interference proceeding, subsequently claim 38 is rejected on the grounds of estoppel.

Claims 39-40 are rejected as unpatentable over the lost count 2 on the grounds of estoppel.

The lost Count 2:

A fiber amplifier comprising

a gain optical fiber having a single-mode core containing dopant ions capable of producing stimulated emission of light within a predetermined band of wavelengths including a wavelength λ_s when pumped with light of wavelength λ_p, said gain fiber having input and output ends, said dopant ions being selected from the group consisting of erbium, neodymium and praseodymium,

filtering means for attenuating light at at least some of the wavelengths within said predetermined band of wavelengths, said filtering means containing a dopant selected from the group consisting of erbium, dysprosium, neodymium, ytterbium, samarium, praseodymium, thulium, vanadium and cadmium selenide,

means for introducing a signal of wavelength λ_s into said gain fiber input end, and

means introducing pump light of wavelength λ_p into said gain fiber.

Claims 19-20 correspond to the lost count 2.

The only difference between claim 39 and the count 2 is that the gain fiber is limited to a fiber "having **only one** single-mode core" in contrast to the count 2 which includes a gain fiber "having **a** single-mode core".

The lost count 2 certainly anticipates gain fiber having **only one** single-mode core as claimed in claim 39 of this reissue application, since the lost count 2 refers to a gain optical fiber having **a** single mode core.

Claim 40 is identical to claim 20. Since claim 20 correspond to the lost count 2 of the interference proceedings, claim 40 is rejected on the grounds of estoppel.

Claims 41-43 are rejected as unpatentable over the lost counts on the grounds of estoppel.

Claims 41-42 also correspond to the lost Count 1 of the interference proceeding detailed above. The difference between the interference count 1 and these claims is that these claims further define the gain spectrums of the gain fiber and ion filtering means over the wavelength bands. Performing routine experimentation, the ordinary artisan would certainly found it obvious to draw out the gain spectrums of the gain fiber and filtering means of the count 1. It is certainly inherent that the gain spectrum will have flat or un-flat response over the certain wavelengths in count 1.

Claim 43 corresponds to the lost Count 2 of the interference proceeding detailed above.

The difference between the interference count 2 and claim 43 is that this claim further defines the gain spectrums of the gain fiber and filtering means over the wavelength bands. Performing routine experimentation, the ordinary artisan would certainly found it obvious to draw out the gain spectrums of the gain fiber and filtering means of the count 2. It is certainly inherent that the gain spectrum will have flat or un-flat response over the certain wavelengths in count 2.

Claims 44-50 are rejected as unpatentable over the lost count 1 on the grounds of estoppel and further in view of Grasso et al (US 5,245,467).

The difference between the lost count 1 and these claims is that these claims further defines the gain spectrums in the gain filter and filtering means over the predetermined wavelength bands (i.e. peak around 1532 nm, flat gain region from 1540 nm to 1560 nm). Working wavelength band between 1530-1560 is well known in optical fiber communication art. Grasso et al (US 5,245,467) clearly shows an optical communication fiber working in the wavelength band of 1500-1600. Grasso et al, in Figs. 3-4, further simulates emission of optical fiber in terms of db and wavelength band of 1500-1600 and also describes the spectrum peak and intensity at throughout the disclosure.

Performing routine experimentation, the ordinary artisan would certainly found it obvious to draw out the gain spectrums of the gain fiber and filtering means of the count 1, according to well-known wavelength band as suggested by Grasso et al. It is certainly inherent that the gain spectrum will have flat or un-flat response over the certain wavelengths in count 1. Also, it is known in the art that the geometry of the spectrum depend upon the concentration of dopant in combination with pumping wavelength and signal wavelength. Adjusting the concentration of dopant in the count 1 will certainly arrive at desired gain spectrum with predetermined wavelength band as claimed. Also, providing a reverse pumping and selecting source for pumping at desired wavelength is certainly within the level of ordinary skilled artisan. Since claims

44-50 correspond to the lost count 2, these claims are subsequently rejected on the grounds of estoppel.

Since claims 37-50 correspond to the lost counts of the interference proceedings, this reissue application contains no error.

The reissue declaration filed with this application is defective because the error which is relied upon to support the reissue application is not an error upon which a reissue can be based. See 37 CFR 1.175(a)(1) and MPEP § 1414.

The reissue declaration contains a statement under 37 C.F.R. 1.175 having following error:

Error: It was error without deceptive intent to permit U.S. Patent No. 5,131,069 to issue without having a claims specifically directed to an amplifier structure having only one single-mode core.

Applicant has filed claims 35-40 based on the above error statement. The following table compares the originally patented claims 15-20 and claims 35-40 of the reissue application.

Claims of the originally patented claims in the U.S. Patent No. 5,131,069	Claims of this Reissue Application.
15. A fiber amplifier comprising a gain optical fiber having a single-mode core containing gain ions capable of producing stimulated emission of signal light within a predetermined band of wavelengths including a wavelength λ_s when pumped with pump light of wavelength λ_p, said gain fiber having first and second ends, a filtering fiber containing gain ions for filtering signal light, a pump light-attenuating fiber having a core	35. A fiber amplifier comprising a gain optical fiber having **only one** single-mode core, said core containing gain ions capable of producing stimulated emission of signal light within a predetermined band of wavelengths including a wavelength λ_s when pumped with pump light of wavelength λ_p, said gain fiber having first and second ends, a filtering fiber containing gain ions for filtering signal light, a pump light-attenuating fiber having a core

containing a dopant that attenuates said pump light while signal light remains substantially unattenuated, said pump light-attenuating fiber connecting the second end of said gain fiber to an end of said filtering fiber, means for introducing pump light of wavelength λ_p into the first end of said gain fiber, and means for introducing a signal of wavelength λ_s into one of the ends of the series combination of said gain fiber, said pump light-attenuating fiber and said filtering fiber, the gain ions of said filtering fiber remaining unexcited during operation because of the pump light filtering action of said pump light-attenuating fiber, whereby said filtering fiber alters the spectral gain of said amplifier.	containing a dopant that attenuates said pump light while signal light remains substantially unattenuated, said pump light-attenuating fiber connecting the second end of said gain fiber to an end of said filtering fiber, means for introducing pump light of wavelength λ_p into the first end of said gain fiber, and means for introducing a signal of wavelength λ_s into one of the ends of the series combination of said gain fiber, said pump light-attenuating fiber and said filtering fiber, the gain ions of said filtering fiber remaining unexcited during operation because of the pump light filtering action of said pump light-attenuating fiber, whereby said filtering fiber alters the spectral gain of said amplifier.
16. A fiber amplifier comprising first and second gain optical fiber sections, each having a single-mode core containing dopant ions capable of producing stimulated emission of light within a predetermined band of wavelengths including a wavelength λ_s when pumped with light of wavelength λ_p, each gain fiber section having first and second ends, first and second pump light-attenuating fiber sections, each having a core containing a dopant that attenuates optical power in at least one wavelength band including said wavelength λ_p, while optical power at said wavelength λ_s remains substantially unattenuated thereby, each pump light-attenuating fiber section having first and second ends, the first end of each of said pump light-attenuating fiber sections being spliced to a respective one of the second ends of said gain fiber sections, a filtering fiber, the ends of which are respectively connected to the second ends of said pump light attenuating fiber sections, said filtering fiber being doped with gain ions, means for introducing pump light of wavelength λp into the first end of each of said gain fiber sections, and means for introducing a signal of wavelength λ_s into the first end of one of said gain fiber sections, the gain ions of said filtering fiber remaining unexcited during operation because of the pump light filtering action of said pump light-attenuating fiber.	36. A fiber amplifier comprising first and second gain optical fiber sections, each having **only one** single-mode core, said core containing dopant ions capable of producing stimulated emission of light within a predetermined band of wavelengths including a wavelength λ_s when pumped with light of wavelength λ_p, each gain fiber section having first and second ends, first and second pump light-attenuating fiber sections, each having a core containing a dopant that attenuates optical power in at least one wavelength band including said wavelength λ_p, while optical power at said wavelength λ_s remains substantially unattenuated thereby, each pump light-attenuating fiber section having first and second ends, the first end of each of said pump light-attenuating fiber sections being spliced to a respective one of the second ends of said gain fiber sections, a filtering fiber, the ends of which are respectively connected to the second ends of said pump light attenuating fiber sections, said filtering fiber being doped with gain ions, means for introducing pump light of wavelength λ_p into the first end of each of said gain fiber sections, and means for introducing a signal of wavelength λ_s into the first end of one of said gain fiber sections, the gain ions of said filtering fiber remaining unexcited during operation because of the pump light filtering action of said pump light-attenuating fiber.

17. A fiber amplifier comprising a gain optical fiber having a single-mode core containing dopant ions capable of producing stimulated emission of light within a predetermined band of wavelengths including a wavelength λ_s when pumped with light of wavelength λ_p, said gain fiber having input and output ends, filtering means for attenuating light at at least some of the wavelengths within said predetermined band of wavelengths, said filtering means containing ions that can be excited by light of wavelength λ_p means for introducing a signal of wavelength λ_s into said gain fiber input end, means introducing pump light of wavelength λ_p into said gain fiber, and means for preventing the excitation of said filtering means by light of wavelength λ_p.	37. A fiber amplifier comprising a gain optical fiber having **only ne** single-mode core, said core containing dopant ions capable of producing stimulated emission of light within a predetermined band of wavelengths including a wavelength λ_s when pumped with light of wavelength λ_p, said gain fiber having input and output ends, filtering means for attenuating light at at least some of the wavelengths within said predetermined band of wavelengths, said filtering means containing ions that can be excited by light of wavelength λ_p means for introducing a signal of wavelength λ_s into said gain fiber input end, means introducing pump light of wavelength λ_p into said gain fiber, and means for preventing the excitation of said filtering means by light of wavelength λ_p.
18. A fiber amplifier in accordance with claim 17 wherein said gain fiber is co-doped with signal light absorbing ions that are different from said gain ions.	38. A fiber amplifier in accordance with claim 37 wherein said gain fiber is co-doped with signal light absorbing ions that are different from said gain ions.
19. A fiber amplifier comprising a gain optical fiber having a single-mode core containing dopant ions capable of producing stimulated emission of light within a predetermined band of wavelengths including a wavelength λ_s when pumped with light of wavelength λ_p, said gain fiber having input and output ends, said dopant ions being selected from the group consisting of erbium, neodymium and praseodymium, filtering means for attenuating light at at least some of the wavelengths within said predetermined band of wavelengths, said filtering means containing a dopant selected from the group consisting of erbium, dysprosium, neodymium, ytterbium, samarium, praseodymium, thulium, vanadium and cadmium selenide, means for introducing a signal of wavelength λ_s into said gain fiber input end, and means introducing pump light of wavelength λ_p into said gain fiber.	39. A fiber amplifier comprising a gain optical fiber having **only one** single-mode core, said core containing dopant ions capable of producing stimulated emission of light within a predetermined band of wavelengths including a wavelength λ_s when pumped with light of wavelength λ_p, said gain fiber having input and output ends, said dopant ions being selected from the group consisting of erbium, neodymium and praseodymium, filtering means for attenuating light at at least some of the wavelengths within said predetermined band of wavelengths, said filtering means containing a dopant selected from the group consisting of erbium, dysprosium, neodymium, ytterbium, samarium, praseodymium, thulium, vanadium and cadmium selenide, means for introducing a signal of wavelength λ_s into said gain fiber input end, and means introducing pump light of wavelength λ_p into said gain fiber.
20. A gain amplifier in accordance with claim 19 wherein said filtering means comprises an optical	40. A gain amplifier in accordance with claim 39 wherein said filtering means comprises an optical

fiber containing said dopant ions.	fiber containing said dopant ions.

As can been seen in the above claim comparison, the originally issued claims 15-20 recite "a single-mode core" and claims 35-40 filed in this reissue application recite "only one single-mode core". This is not considered error, since the scope of the protection of the originally issued claims is commensurate with the scope of the protection sought by the claims of this reissue application. Note that the issued claims with a single-mode core would provide equal protection against claims directed to only one single-mode core. Any amplifier with only one single mode core would certainly infringe upon the issued claims in the Patent No. 5,131,069. Thus, it is not consider an error.

Claims 35-50 are rejected as being based upon a defective reissue declaration under 35 U.S.C. 251 as set forth above. See 37 CFR 1.175.

The nature of the defect(s) in the declaration is set forth in the discussion above in this Office action.

Claims 44-50 are rejected under 35 U.S.C. 251 as being broadened in a reissue application filed outside the two year statutory period.

Claims 44-50 do not recite a single mode core and an excitation preventing means as claimed in original independent claim 1. Claims are narrower in some aspects, however these claims are broader in the aspect of lacking an excitation preventing means and a gain fiber with a single mode core.

A claim is broader in scope than the original claims if it contains within its scope any conceivable product or process which would have infringed the original patent. A

claim is broadened if it is broader in any one respect even though it may be narrower in other respects.

The original patent, or a statement as to loss or inaccessibility of the original patent, must be received before this reissue application can be allowed. See 37 CFR 1.178.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hemang Sanghavi whose telephone number is 703-305-3484. The examiner can normally be reached on Monday-Thursday (8:30 AM-6:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on 703-308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Hemang Sanghavi
Primary Examiner
Art Unit 2874

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